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ABSTRACT

Headsmart Adventures is an interpersonal skills curriculum designed for nine to eleven-year old children which was the subject of a quasi-experimental study in seven Philadelphia area schools. The evaluation was based on results of a structured interview and two affective tests specially designed to measure the goals of the program. The purpose of the course was to teach concepts and skills that would enable children to be more effective in their interpersonal relationships, to understand and express emotions and to be aware of emotions in others. The study indicated that experimental classes had higher test scores than did control classes from the same seven schools. Another finding was that girls had higher scores than did boys. There is a discussion of social learning theory and role models as they might affect sex differences. Copies of the interview schedule and the two tests are included. What Would You Do? includes 18 multiple choice questions concerning what the student would do in particular situations. What's Happening? asks questions about the emotions displayed in eight different sets of cartoons. (CTM)

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Effects of an Interpersonal Skills Curriculum on Orientations Toward Behavior Among Fourth Grade Children

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Abstract

This paper reports the results of a goal-referenced evaluation of an interpersonal skills curriculum known as *Heartsmart Adventures* developed by Research for Better Schools through support from the National Institute of Education. The goals of the program were to teach nine to eleven year old children to: (1) identify feelings and behaviors and to infer feelings from behavior in others, (2) identify ways in which people behave when they have certain feelings, (3) identify cause and effect relationship between feelings and behavior, (4) determine feelings in others by asking, (5) express individual needs and desires and take appropriate actions to accomplish them, (6) express feelings (become more open to expressing feelings to others), and (7) transfer expression of feelings to non-school interpersonal situations. The evaluation was conducted in seven Philadelphia area schools. Two criterion- referenced tests were administered as posttests to experimental and comparison classes in each school. An interview was also administered to randomly selected pupils. Test data were analyzed using multivariate analysis of variance. Results indicated that experimental classes significantly outperformed comparison classes in each school. Interview data suggested out-of-school applications of skills learned from the program. Results also indicated sex-related program impacts with girls performing better than boys on assessment measures.

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Background

In late 1977, after nearly four years of effort, Research for Better Schools (RBS), through support from the National Institute of Education, completed the development of an interpersonal skills curriculum known as *Heartsmart Adventures*. This program was designed to teach nine to eleven year old children concepts and skills that would enable them to be more effective in their interpersonal relationships. The final version of the program consists of thirty-one lessons, each designed to take about half an hour. Twenty-four lessons are based on dramatized tapes. Six lessons are teacher-led discussions, called "Heart-to-Heart Talks" in which students are given opportunity to relate what they are learning from the program to their own personal experience. A special lesson, based on script to be dramatized by the students, is a teacher-led group training session. In addition to these lessons there are optional enrichment activities to be used at the teacher's discretion. The tapes tell a dramatized story of a boy named Jack who has many adventures as he finds his feelings and learns to express them. In the story Jack learns, among other things, to understand himself and other people better. The tapes

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also guide students in individual and small group activities. A variety of student materials is used in the program.

RBS concluded from an extensive review of selected literature in education, social and developmental psychology that children between the ages of nine and twelve are the choice group for the target population of a package which teaches interpersonal skills. Research suggested that: (1) the child of this age is rapidly shifting his or her identity from home to peer group and demonstrating an increasing need to relate effectively to a wide variety of people; (2) affiliating, making, and "testing" friendships and being accepted into peer groups in which the child can get validation of his or her own ideas and feelings are primary concerns for this age group; and (3) the nine-to-twelve year old child is cognitively ready for training in interpersonal skills, since the child is able to make inferences about feelings, thoughts, intentions, and sequences of behavior (RBS, 1972). The RBS literature review also revealed very few systematically developed instructional materials designed specifically to promote the development of interpersonal skills among elementary school children. Valid assessment data on the effects of these materials were also lacking.

Heartsmart Adventures is a product which represents RBS' efforts to develop an educationally effective, appealing, and suitable program for elementary school students and teachers primarily at the fourth or fifth grade level. Evaluation has played an essential and continuous role in the development of this program. During 1974-75, prototype materials of individual program components were tested and a tryout of the entire

program was conducted in a single, racially mixed fourth grade classroom in Los Angeles (Berzon, et al., 1975). Evaluation results for this initial tryout were used to make program revisions. The second phase of evaluation was a pilot test conducted during 1975-76. The goals of the pilot test were to gather preliminary summative evaluation as well as additional formative evaluation data. The pilot test sample included racially and economically diverse students in eight fourth grade classrooms in Los Angeles. Information about program appeal, student achievement, program effectiveness relative to instructional objectives, teacher implementation, relevance and usefulness of the program for low SES, Black minority children, and parental reaction was gathered during the pilot test. These evaluation results (Berzon, et al., 1976) were used to make a second set of program revisions. To complete the development/evaluation cycle for the program, a field test was conducted during 1977 in the Philadelphia metropolitan area. The major purpose of the field test was to assess program effectiveness (i.e., the extent to which the program was successful in achieving its goals of instruction); many other aspects of the program were also evaluated. Complete results from the field test are contained in a technical report prepared for the National Institute of Education (Coan, et al., 1977). The remainder of this paper will be limited, however, to a presentation of field test procedures and results pertaining to the assessment of program impacts on pupils' acquisition of interpersonal skills and dispositions; a major focus of this paper will be on exploring possible sex-related program impacts.

Purpose of Study

The major question of the study was whether the program was effective in producing student learning outcomes consistent with the program's goals and objectives. To understand this question further, it is necessary to discuss the nature of the goals stated for the program. The principle developer of the *Heartsmart Adventures* program, Betty Berzon, stated the goals for the course as follows: to enable students to (1) "recognize, identify, express, and accept responsibility for their own feelings, (2) recognize, identify, understand, and respond facilitatively to other people's feelings, and (3) act affirmatively to accomplish what they want for themselves in their interpersonal relationships" (Berzon, 1977). To clarify the language of these goals, Berzon defines the following terms: recognize refers to increased awareness; identify refers to labelling; express refers to verbal or non-verbal externalization and/or communication of feelings; accept responsibility for refers to a declaration of ownership of feelings being expressed ("I feel lonely when...") in place of an impersonal characterization ("People feel lonely when..."); understand refers mainly to comprehension of causal relationship between feelings and behavior; and facilitatively refers to responding in ways that enable the other person to recognize, identify, express, and "own" their feelings more easily.

The core objectives of the program were to teach an integrated or highly interrelated set of interpersonal skills. In addition it was anticipated that students would transfer some skills learned from the

program to non-school interpersonal situations involving peers and adults. The complete set of student program objectives assessed in this study are stated briefly as follows:

- Identify feelings and behaviors and infer feelings from behavior in others;
- Identify ways in which people behave when they have certain feelings;
- Identify the cause and effect relationship between feelings and behavior;
- Determine feelings in others by asking;
- Express individual needs and desires and take appropriate actions to accomplish them;
- Express feelings (become more open to expressing feelings to others); and
- Transfer expression of feelings learned from the program to non-school interpersonal situations.

Methods

The methods and procedures which were used to evaluate the effectiveness of the *Heartsmart Adventures* program are briefly described in this section.

Design. A quasi-experimental design (Campbell and Stanley, 1963) in which groups instructed in the program were compared with groups receiving traditional instruction was used to assess possible program effects. The essential features of this design were the use of comparison groups, posttest only measures, and non-random selection and assignment of subjects to treatment and comparison conditions. Since this design does not assure statistical parity between groups on important

pre-experimental variables, the results of the study could possibly be attributed to non-treatment (i.e., uncontrolled) factors associated with the use of quasi-experimental designs.

Sampling. Sampling procedures which were used to identify and select subjects for the study involved several months of contacting and securing cooperation from school districts, individual schools, principals, teachers, and parents. One interesting facet of sampling involved a protection of human subjects procedure known as "informed parental consent." This procedure essentially involved informing parents about the nature of the program and potential benefits and risks of the program to children and asking them to decide whether or not to give their consent to have their child take the program. Only one set of parents withdrew its child.

Subjects. Subjects for the study included 394 predominantly fourth grade children of varying SES and racial/ethnic backgrounds. These children were attending three inner city, one urban fringe, and three suburban Philadelphia elementary schools. The racial/ethnic and SES characteristics of these schools mirrored the composition of residents in the local neighborhood community. Table 1 presents a summary description of the estimated SES status of participating schools, and the sex and race characteristics of the pupil sample by school and treatment condition (i.e., experimental vs. comparison classes):

Insert Table 1 here

School characteristics ranged from very low to upper-middle SES, and from urban (inner-city) to suburban location. Table 1 shows that class size was nearly equal between experimental (E) and comparison (C) groups; approximately half of each class consisted of male and female students (with the exception of the C class at School G). Roughly the same proportion of students from different racial groups (i.e., White, Black, Oriental) was represented in E and C classes within each school. At School E, however, there was a higher proportion of White pupils in the E class than in the C class. The overall sample included 51.2% males and 48.8% females, and 45.0% Black and 54.0% White children.

Large differences among the schools with respect to racial composition should be noted. Over 90% of sample pupils in Schools B, C, and D were White; in Schools F and G, the total sample consisted of Black children. Classrooms in Schools A and E were racially mixed.

Although systematic data were not gathered on ethnicity, it is worth noting that children from Armenian, Polish and Spanish backgrounds were included in the sample. These ethnic groups were not, however, concentrated in any one school or treatment condition.

Instrumentation. Three instruments were used to assess program effects. A ten to fifteen minute interview form, called the Student Interview (SI), was designed to assess student learning outcomes particularly related to the "learning transfer" objective of the program. Interview questions asked students to report what feelings they most often expressed, to whom, and in what situations.

Two criterion or objective-referenced tests, What Would You Do? (WWYD?) and What's Happening? (WH?), were constructed or adapted by RBS staff to assess program outcomes. The WWYD? test was a modified version of a test called What Should Be Done? which was initially conceptualized and designed for the 1976 Pilot Test of the program by Dr. Adrianne Bank from the Center for the Study of Evaluation (University of California at Los Angeles). The test was modified by adding, deleting or changing items to reflect more accurately the instructional goals and content of the course. The name of the test was also changed to remove the implied dogmatic and moralistic tone of the test and the program. With regard to content, the WWYD? test describes 18 realistic problem-oriented situations involving young children and parents, siblings or friends. Most situations were created from "real-life" experiences of children. For each problem pupils were asked to choose one among three possible actions (or options). One option was intended to represent an objective-referenced response; either or both of the remaining options (i.e., distractors) were not related to a program objective or represented a counter-objective (i.e., hiding feelings, guessing instead of asking another person's feelings, etc.). The dimensions presumably measured by this test relate to expression of feelings (e.g., anger, loneliness, fear), expressing feelings into actions, and expressing desires and requesting actions of another to accomplish desires. A split-half (odd/even) reliability coefficient of internal consistency computed for the WWYD? test, corrected by the Spearman-Brown formula, was .79. The test

was also factor analyzed, using principal components analysis with varimax rotation, in order to discover any underlying program relevant dimensions which could possibly be developed into separate indices. Factor analysis produced only one factor which accounted for 93% of the variance in test items. It was appropriate, then, to represent a subject's score on this test by the total number of correct answers. That the test was found to have relatively high internal consistency possibly confirms the integrated nature of the program's objectives.

The WH? test consists of eight sets of strip cartoons illustrating characters (e.g., friends, parents, grandparents) in situations presumably familiar to young children. Each cartoon was followed by a series of short-answer, open-ended questions designed to assess a pupil's ability to identify appropriately feelings of characters, identify ways that characters expressed their feelings, recognize how feelings can cause behavior, and demonstrate how to find out another person's feelings by asking. Internal consistency reliability for the WH? test, estimated by Alpha Coefficient, was .56.

It is important to emphasize that these two criterion-referenced tests did not purport to measure pupil behavior in actual interpersonal situations. They only presumed to assess certain acquired "social" skills and to measure tendencies toward behavior in limited kinds of social situations represented on both tests. The extent of any relationship between these behavioral tendencies and actual behavior in real situations was not assessed in this study.

The SI and the WWYD? and WH? tests are provided in Appendix A.

Data Collection. The SI was administered by RBS staff on an individual basis to three to five randomly selected pupils, stratified by sex, from each experimental class at the end of the course. The criterion-referenced measures were administered at the end of the course to both experimental and comparison groups. The procedure for giving these tests was to read each item aloud to the class. Advantages of this procedure were to enable the test giver to pace students through the task, hold their attention, and reduce (error) variance in test scores due to individual differences in reading ability.

Data Analysis. Criterion-referenced measures were analyzed principally by multivariate analyses of variance (MANOVA) and the SI by content analysis procedures. The MANOVA statistical approach has important advantages over other procedures (e.g., univariate gain-score analysis, analysis of variance/covariance). First, it performs the usual F-test for significant differences between groups on more than one dependent variable simultaneously. In the case of multiple dependent measures or indices on the same set of subjects, one is likely to find significant intercorrelations. In an "experimental" situation, finding a reliable difference on one dependent variable increases the chances of finding a similar difference on related variables. MANOVA, however, effectively partials out dependent variable intercorrelations and provides a more accurate assessment of group differences. The correlation between the WH? and WWYD? tests was .34 ($p < .01$). This highly significant correlation amply justifies the use of MANOVA. A further, related advantage of MANOVA, in combination with univariate statistical analyses, is that it maintains a consistent, moderately conservative experiment-wise error rate regardless of the magnitude of dependent variable correlations

(Hummel and Siigo, 1971). The Alpha for determining the statistical significance of multivariate results was set at the .05 level. The Alpha level for univariate results was set at .01 to take into consideration inflation of the error rate per comparison in performing multiple statistical tests.

Multivariate statistical results presented in this report were provided by the Statistical Analysis System (Barr, et al., 1976) and Multivariance Version VI (Finn, 1977) computer program packages.

Results

Three "program effects" hypotheses and one exploratory question were formulated in this study. This section describes the results obtained from the two criterion-referenced measures and the Student Interview.

Hypothesis One. The first hypothesis was: *Heartsmart Adventures* program students will demonstrate greater ability and/or tendency than comparison group students to:

- Identify feelings and behaviors, and infer feelings from behaviors in others;
- Identify ways in which people may behave when they have certain feelings;
- Identify the cause and effect relationship between feelings and behavior;
- Determine feelings in others by asking;
- Express individual needs and desires and take (appropriate) actions to accomplish them; and
- Express feelings.

This hypothesis was first tested in a general way by comparing the performance of experimental (E) and comparison (C) classes within each school

on the WWYD? and WH? tests. Both multivariate and univariate ANOVA results are reported in Table 2.

Insert Table 2 here

The MANOVA F values indicated statistically significant differences between E and C groups on both measures at all seven school sites. The univariate F-test results showed that E classes performed significantly better on the average than C classes on either or both measures in all seven schools. (Though not reported in Table 2, the univariate results found in School E may be questioned on the grounds that the assumption of homogeneity of variances between groups was not met (Hartley's F-max $_{(2, 29)} = 2.40$, $p < .05$).) The largest variance was found in the experimental class, which happened to include the only fifth grade pupils in the study.

It is instructive to examine Hypothesis One in terms of its separate dimensions (i.e., program objectives). Table 3 presents the mean percents of E and C group subjects giving correct answers to seven clusters of items, each corresponding, presumably, to one program objective. Item clusters were formed on a logical basis by content analysis. Z-tests were performed to test for differences between proportions of correct responses given by E and C pupils for each item cluster. The results indicated that a significantly higher percent ($p < .025$) of E subjects across all seven schools gave correct responses to four of seven item clusters than did C group subjects. E students performed

better on Objectives 3 and 6, but differences were not statistically significant. When all program objectives were considered in a single overall analysis, a significantly higher percent of E students gave correct responses to the tests' item clusters than the C students.

Insert Table 3 here

The results from the above two sets of statistical analyses appear to provide consistent support for Hypotheses One. For the most part, the results are both highly significant in a statistical sense and consistent across field test sites. However, since the test of Hypothesis One was performed on posttest measurements only, the possibility of pre-exisitng group differences in favor of E classes cannot be completely ruled out as an alternative explanation for the obtained results.

Hypothesis Two. The following hypothesis was made: *Heartsmart Adventures* students will report they have learned interpersonal skills consonant with the objectives of the program. This hypothesis essentially deals with the same underlying question as in Hypothesis One: Were observed program outcomes congruent with stated program objectives? However, this hypothesis was tested by using self-report rather than performance data, gathered only from experimental students. Interviews which were conducted with approximately a 20% sub-sample (N = 38) of experimental subjects provided valuable information about students' perceptions of what they learned from the program. Responses to Question 1 of the Student Interview were analyzed according to the same "objectives"

categories used in the statement of Hypothesis One. The question was: "Think about Jack and his adventures, and the things he learned. What did you learn from *Heartsmart*?"

Table 4 shows the results from this analysis.

Insert Table 4 here

Of 38 subjects interviewed, 32 gave interpretable responses. A total of 46 responses (i.e., different ideas/thoughts) were classifiable into six "objectives" categories, and one "other" category. The "other" category contained responses that were not relevant to program objectives. The second column in Table 4 indicates the percent of all responses that were classified in each of the seven categories. The third column shows the percent of students giving responses classified into the six "objectives" categories. Attention is focused primarily on this last column of results. Fifty percent of the students gave responses related to Objective 6: "expressing feelings." These students reported learning that it was "good" or "OK" to tell and/or show their feelings, to share feelings with others, and to express negative feelings (e.g., anger). Objective 1, "identify feelings and behavior and infer feelings from behaviors in others," was mentioned by more than one-fourth of the students (i.e., 28.1%). Objective 4, "determine feelings in others by asking," was mentioned by 15.6% of the students. Very few students made responses related to Objectives 2 and 3, and none mentioned Objective 5.

These findings provide moderate support for Hypothesis Two. Most students interviewed (32 out of 38) reported having learned interpersonal skills that were consonant with five of the six program objectives. However, very few or no students felt they had learned about objectives 2, 3, and 5. The open-ended nature of the interview questions may have caused some students difficulty in expressing ideas related to these objectives.

Hypothesis Three. The third hypothesis of the study was: *Heartsmart Adventures* program students will transfer interpersonal skills learned from the program to other situations.

An objective stated for the program was to increase the likelihood that pupils would apply interpersonal skills they learned from the program to situations outside the classroom. This hypothesis was examined by an analysis of pupils' responses to Questions 2, 3, and 5 of the SI.

Of 38 pupils, 33 reported showing their feelings more now than before taking the program. Five subjects said that they do not show their feelings more now than before. Three of these five students reported they show their feelings less now than they did before. When asked what kind of feelings they show now, 17 subjects responded with some combination of the feelings dealt with in the course (e.g., mad, sad, glad, hurt, happy). Ten responded with a catch-all phrase "all feelings," and six subjects described situations in which they expressed or acted out feelings rather than naming the feelings. When asked where, or in what situations, they show their feelings now, nine subjects

reported situations occurring mostly at home (with parents and siblings); seven responded with "everywhere"; six students reported showing feelings more only with their friends; one subject answered "just at school"; and ten reported showing feelings at home and at school.

The interview asked students to relate a situation in which they expressed their feelings. Thirty-one students responded to this question by portraying a variety of situations in which they expressed different feelings. Sixteen students reported situations involving siblings and friends, and 14 of these 16 were situations in which siblings/friends were told to stop an annoying behavior. Seven students related situations in which feelings were expressed to parents, such as mad, sad, and scared feelings. Four students related situations in which they expressed feelings to adults outside the classroom. Four students told about situations in which they wanted to express their feelings, but didn't

Earlier it was reported that three students said they showed their feelings less often now than before the program. One of these could not give a reason why, and the other two seemed to show an understanding of when it was best (for them) to hide feelings (e.g., when telling feelings might cause others to have hurt feelings, and when expressing feelings might bring on further trouble for themselves).

Question 5 of the SI asked pupils if showing feelings helped them in their interpersonal relationships. Thirty subjects answered "yes," two answered "no." and five said "sometimes." The 35 "positive" respondents were asked to explain how showing feelings helped them: 17 subjects stated that expressing their feelings "made them feel better,"

and 15 students said that some desired end was accomplished (e.g., getting a friend to stop an annoying behavior, getting friends to be nicer to them). The remaining three subjects did not give interpretable responses.

In summary, data gathered from experimental subjects by interview at the end of the program provided support for Hypothesis Three, with one major qualification. Since interview questions focused mainly on one program objective, "expressing feelings," it cannot be concluded that interpersonal skills related to other program objectives were applied by students in out-of-class interpersonal situations.

Results from both the criterion-referenced tests and the Student Interview reported this far appear to indicate generally that the *Heartsmart Adventures* program was, at least, moderately successful in promoting the development of certain interpersonal skills and dispositions intended by the program. Given that a quasi-experimental design was employed in the study, there is a possibility that uncontrolled factors, namely selection and/or selection-maturation interaction effects (Campbell and Stanley, 1963) could have accounted for the obtained results. The overall statistical strength and consistency of results across sample schools would suggest, however, "true" program effects.

Exploratory Question. An analysis was made of the data obtained on the criterion-referenced measures to explore possible sex-related effects of the program. Table 5 reports multivariate and univariate F-test results on sex differences between experimental and comparison groups on the WWYD? and WH? tests. Significant multivariate, main effects for sex

were found at Schools B, C, and D, with girls scoring higher than boys at each school. Only at School C was a significant Sex X Treatment interaction effect found; at this school the mean score for girls was highest. Although most Sex X Treatment interactions reported in Table 5 were not statistically significant, they indicated a fairly consistent tendency for experimental girls to perform best on the WWYD? test at Schools A, B, C, F, and G, and on the WH? test at Schools A, C, E, F, and G.

Insert Table 5 here

In summary, girls generally performed better than boys on the criterion-referenced tests, and at most schools (i.e., five out of seven) there was a strong tendency for girls in experimental groups to achieve the highest scores.

Conclusions

The findings of this study suggest general as well as sex-related program impacts on students' acquisition of certain interpersonal skills and dispositions. It is of interest to ask what factors might have accounted for these two sets of results? The connection between specific program factors or dynamics and student learning outcomes was not directly or empirically assessed in the field test study; consequently, it is difficult to draw any conclusions as to how or why *Heartsmart Adventures* students' performance on criterion-referenced measures, in particular, was significantly greater than that of comparison group students.

However, some speculation with respect to results which indicated differential sex effects of the program is in order. Speculation will be centered on two theoretical perspectives: one based on principles of modeling or imitation, and the other based on principles of socialization.

It can be assumed that results indicating superior performance by girls across experimental and comparison groups on the criterion-referenced tests is probably a reflection of culture-wide sex differences on affective-social aspects of interpersonal behavior. There is considerable empirical evidence cited in Mischel (1970) that girls and boys rapidly acquire knowledge of the differences about masculinity and femininity and tend to behave in ways consonant with that knowledge with respect to particular social traits (e.g., aggression, dependency). A modeling theory suggests that the acquisition of sex-appropriate behavior occurs primarily through a process of imitation (or identification). Imitation generally refers to the tendency for a person to reproduce behavior, attitudes or emotional responses exhibited by real-life or symbolized models.

A considerable body of experimental literature has investigated how characteristics of an adult model might be related to imitative behavior in children. A subset of this literature has focused on the question of how much imitative learning is determined by sex similarity between the model and child(ren). At this point it is necessary to know that all teachers of both experimental and comparison classes were female. The specific question to be addressed here is whether

girls outperformed boys on the criterion-referenced measures in the experimental classes because girls were more likely than boys to select the (female) teacher as the model for program-relevant behavior. No definitive answer to this question could be found when various syntheses or reviews of relevant literature were examined. For example, Mischel (1970) concluded that "the overall results on the effects of similarity between observer and model indicate that similarity often enhances imitation" (p. 39). Mischel states further that:

> From the viewpoint of social learning theory, the greater attentiveness to same-sex models, especially when they are displaying appropriately sex-typed behavior, probably reflects that people generally are reinforced throughout their histories more for learning the sex-typed behaviors of the same sex models than those of cross-sex models (p. 58).

However, Maccoby and Jacklin (1974) reached a different conclusion in their review of 20 experimental studies in which children were exposed to models of both sexes and their imitation of same-sex vs. cross-sex models compared: "...there is little consistent tendency for children of preschool or grade school age to select same-sex models" (p. 294). To complicate matters further, Mischel (1970) cites several experimental research studies which have shown that cross-sex models are more powerful than same-sex models as social reinforcers of behavior. The apparent contradictions of findings in the literature might be understood if the specific conditions under which both sex-similarity and sex-difference are important factors could be determined. These findings may have suggested a faulty assumption, namely that the teacher (adult) was the principal model for children in the Heartsmart course. One might have assumed the dominance of the teacher as a model because

of her status position and role relative to students. However, since the *Heartsmart Adventures* program is primarily tape- rather than teacher-led, and the main character of the taped story was a boy named Jack, it is plausible to suggest that Jack, a male child, or even other important child story characters, served as salient model(s) for children. Another possibility is that, while being instructed in the program, a pupil's closest set of friends, or the total peer group in the classroom, were significant models. A more complicated and, perhaps, more accurate assumption is that all three models, the teacher, story characters, and the peer group, separately or concurrently, were salient to children at certain times under particular circumstances throughout the course. For example, when children listened to the tape-led lessions, Jack may have been the important model; when children engaged in "Heart-to-Heart Talks" led by the teacher, the teacher may have been the model; when students participated in samll group activities practicing some of the skills taught by the tape-led lessons, the peer group may have become the dominant model. The relevant similarities and differences between these possible models and the children, and their importance for fostering the development of interpersonal skills and dispositions among girls and boys differentially are difficult to unravel, particularly under natural behavior conditions (i.e., outside the experimental laboratory). A more elegant explanation of these findings can possibly be drawn from theory based on principles of socialization.

Socialization theory generally posits that girls and boys are

differentially rewarded for sex-appropriate behavior. Despite recent trends toward liberalization of women's roles in society, it is still probably true that girls are expected to be nurturant, to maintain an affective posture toward others, and to be more openly expressive of feelings, whereas boys are supposed to act more calmly and to control expression of emotions (Mussen et al., 1969). By the fourth grade, children have developed behaviors and dispositions which are consistent with expectancies from their background social environment (e.g., family) regarding sex-appropriate behavior. The *Heartsmart Adventures* program probably demands from girls behaviors which are more sex-appropriate and consistent with their previous socialization experience (e.g.,expressing feelings, showing sensitivity to the feelings of others, etc.). The program, therefore, may have been more reinforcing of already acquired "feminine" dispositions and would tend to accentuate them. On the other hand, boys enter the program with a different socialization history than girls, and probably confront demands to try out new patterns of interpersonal behavior. For boys, this experience might be somewhat discomforting. Possible evidence that adjustment to the program by boys was somewhat difficult came from classroom observations conducted by RBS staff and informal teacher reports which clearly indicated that the program was less appealing to boys than girls. Boys' performance on the criterion-referenced measures, however, did not reflect marked inhibition to learning from the program, since their average test scores were consistently higher than either girls or boys in comparison

classes. To fully develop this explanation for the sex-program interaction results found in this study in terms of "expectancy theory," one could examine whether a differential system of expectations for sex-appropriate behavior was operating in experimental classes, and whether such a system was more pronounced in experimental classes. Since the general field test study was not designed to examine this question, it is not possible to provide a definitive answer.

Table 1

Description of School and Student Sample by
Sex, Race, and Treatment Condition

School	SES & Area	Class	N	SEX (%)		RACE (%)		
				Male	Female	White	Black	Oriental
A	Lower to upper middle Suburban	Experimental	25	48.0	52.0	76.0	24.0	0.0
		Comparison	22	50.0	50.0	68.2	31.8	0.0
B	Upper middle Suburban	Experimental	28	50.0	50.0	96.4	0.0	3.6
		Comparison	29	48.3	51.7	100.0	0.0	0.0
C	Low Suburban	Experimental	28	46.4	53.6	96.4	0.0	3.6
		Comparison	27	55.6	44.4	96.3	0.0	3.7
D	Lower to middle Suburban	Experimental	24	54.2	45.8	95.8	4.2	0.0
		Comparison	25	60.0	40.0	92.0	8.0	0.0
E	Low to upper middle Urban	Experimental*	32	46.9	53.1	25.0	75.0	0.0
		Comparison	32	50.0	50.0	9.4	87.5	3.1
F	Low Urban	Experimental	31	45.2	54.8	0.0	100.0	0.0
		Comparison	31	51.6	48.4	0.0	100.0	0.0
G	Very low Urban	Experimental	29	44.8	55.2	0.0	100.00	0.0
		Comparison	31	32.2	67.8	0.0	100.0	0.0
Total			394	48.8	51.2	54.0	45.0	1.0

* This group includes ten fifth grade pupils.

Table 2

Multivariate and Univariate ANOVA Results of Experimental vs. Comparison Group Differences on the What's Happening? and What Would You Do? Tests, Reported by Each School

		Experimental		Comparison		
SCHOOL		N	MEAN	N	MEAN	UNIVARIATE F-TEST
A	What's Happening?	23	16.22	21	12.90	6.84**
	What Would You Do?	23	9.82	21	6.42	12.10**
MANOVA $F_{(2,39)} = 7.35$**						
B	What's Happening?	28	13.43	28	13.21	0.05
	What Would You Do?	28	11.36	28	7.86	12.36**
MANOVA $F_{(2,51)} = 6.12$**						
C	What's Happening?	28	14.42	23	12.04	6.01**
	What Would You Do?	28	6.67	23	7.34	2.01
MANOVA $F_{(2,46)} = 4.61$*						
D	What's Happening?	24	15.33	24	14.63	0.68
	What Would You Do?	24	12.88	24	9.62	7.86**
MANOVA $F_{(2,43)} = 4.07$*						
E	What's Happening?	28	12.71	24	10.87	4.15*
	What Would You Do?	28	9.42	24	6.16	10.04**
MANOVA $F_{(2,47)} = 5.77$**						
F	What's Happening?	30	14.03	31	10.32	21.65**
	What Would You Do?	30	9.20	31	7.38	4.57*
MANOVA $F_{(2,56)} = 11.46$**						
G	What's Happening?	24	12.43	23	11.04	1.53
	What Would You Do?	24	8.54	23	6.69	7.74**
MANOVA $F_{(2,41)} = 3.99$*						

* significant at the $p < .05$ level
** significant at the $p < .01$ level

Table 3

Mean Percentage of Experimental and Comparison Group Subjects Giving Correct Responses to Selected Item Clusters on the What's Happening? and What Would You Do? Tests

Program Objective	Items-Item Cluster Test: What's Happening?	Items-Item Cluster Test: What Would You Do?	Group	Mean Percentage (%) of Subjects Giving Correct Responses to Item Cluster (Program Objective) — School A	B	C	D	E	F	G	Average Total	z-Test
1. Identify (infer) feelings and behaviors and infer feelings from behavior in others.	A1, B1, B4, C1, D2, H1		E	71.7	57.0	51.6	66.4	70.2	54.5	56.8	61.2	2.24*
			C	53.6	53.6	56.0	65.1	44.2	51.7	47.9	53.1	
2. Identify ways in which people may behave when they have certain feelings	C2, D3, E2+, G1+		E	68.2	54.5	71.1	56.5	49.1	62.4	52.9	59.2	3.81*
			C	52.8	41.1	52.9	53.2	42.1	36.7	39.2	45.4	
3. Identify cause and effect relationship between feelings and behavior.	A2,B3,C3, D1,F1,F2, H2,H3		E	73.3	58.4	64.7	61.0	58.5	61.9	53.0	61.5	1.33
			C	54.8	64.0	50.9	67.1	54.9	54.2	51.4	56.7	
4. Determine feelings in others by asking (not by guessing).	B2, C4, E1a, E1c	2, 7, 10	E	66.1	65.5	55.2	75.3	60.4	62.7	60.7	63.6	2.60**
			C	70.6	64.5	49.1	62.5	42.2	47.5	43.7	54.3	
5. Express needs and desires and take actions to accomplish them.		3, 4, 6, 8, 14, 16, 17, 18	E	60.9	69.6	38.0	77.0	53.3	51.5	50.4	57.2	4.32**
			C	36.3	40.8	38.9	59.8	37.6	39.3	39.0	41.6	
6. Express feelings.		1, 5, 9, 11, 12, 13, 15	E	39.1	48.2	29.6	54.8	38.6	40.5	39.1	41.4	1.92
			C	28.5	36.8	40.8	37.9	34.5	36.8	27.0	34.6	
TOTAL											Experimental Group 57.3	2.67**
											Comparison Group 47.6	

+ Analyzed as percentage of subjects giving at least one correct response.
* significant at the $p < .05$
** signivicant at the $p < .01$

Table 4

Analysis of Student Responses to the Question:
"What did you learn from Heartsmart?"

Program Objective	Number of Responses	Percent of Total Number of Responses	Percent of Students Giving Response
1. Identify feelings and behaviors, and infer feelings from behaviors in others.	9	19.5	28.1
2. Identify ways in which people may behave when they have certain feelings.	1	2.2	3.1
3. Identify the cause and effect relationship between feelings and behavior.	2	4.3	6.3
4. Determine feelings in others by asking.	5	10.9	15.6
5. Express individual needs and desires and take (appropriate) actions to accomplish them.	0	0.0	.0
6. Express feelings.	16	34.8	50.0
7. Other (i.e., non-classifiable responses in above 6 categories)	13	28.3	
TOTAL	46	100.0	100.0

NOTE: Above results are based on usable data from 32 experimental subjects.

Table 5

Multivariate and Univariate ANOVA Results of Sex and Sex X Treatment Interaction Effects on the What's Happening? and What Would You Do? Tests

			Sample Size and Mean Score				Univariate F-Test	
			GROUP				EFFECT	
School	Scale	Sex	N	Experimental	N	Comparison	Sex	Sex x Treatment
A	What's Happening?	Male	12	15.41	10	12.30	1.22	0.04
		Female	11	17.09	11	13.45		
	What Would You Do?	Male	12	8.91	10	6.40	1.35	0.63
		Female	11	10.81	11	6.45		
						MANOVA $F_{(2,39)}$ =	0.83	0.43
B	What's Happening?	Male	14	12.42	14	11.50	8.18**	0.56
		Female	14	14.42	14	14.92		
	What Would You Do?	Male	14	8.21	14	6.85	17.32**	4.63*
		Female	14	14.50	14	8.85		
						MANOVA $F_{(2,51)}$ =	10.90**	2.88
C	What's Happening	Male	13	13.53	15	11.53	3.86*	0.00
		Female	15	15.20	8	13.00		
	What Would You Do?	Male	13	3.53	15	7.13	7.47**	6.56**
		Female	15	9.40	8	7.75		
						MANOVA $F_{(2,46)}$ =	7.90**	3.57*
D	What's Happening	Male	13	14.53	13	12.92	0.37	0.81
		Female	11	16.27	11	16.63		
	What Would You Do?	Male	13	13.15	13	8.76	0.29	1.13
		Female	11	12.54	11	10.63		
						MANOVA $F_{(2,43)}$ =	5.01**	1.14
E	What's Happening?	Male	14	12.07	11	10.36	4.29*	2.28
		Female	14	13.35	13	11.30		
	What Would You Do?	Male	14	9.50	11	5.09	0.07	1.15
		Female	14	9.35	13	7.07		
						MANOVA $F_{(2,47)}$ =	0.90	0.51
F	What's Happening?	Male	14	12.71	16	10.18	10.10**	1.33
		Female	16	15.18	15	10.46		
	What Would You Do?	Male	14	8.21	16	7.06	3.66	0.98
		Female	16	10.06	15	7.71		
						MANOVA $F_{(2,56)}$ =	2.40	1.31
G	What's Happening?	Male	13	11.76	10	10.70	0.21	0.56
		Female	11	13.30	13	11.30		
	What Would You Do?	Male	13	6.92	10	6.30	4.39*	2.99
		Female	11	10.45	13	7.00		
						MANOVA $F_{(2,42)}$ =	2.73	2.63

* significant at the $p < .05$ level
** significant at the $p < .01$ level

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APPENDIX A

TIH STUDENT INTERVIEW

1. Think about Jack and his adventures, and the things he learned. What did you learn from "Heartsmart"?

2. Do you tell your friends or parents or teachers your feelings more often now than you did before "Heartsmart"?

☐ YES (Go to 2A)

☐ NO (Go to 3)

2A. Tell me something about the feelings you show. What kinds of feelings do you show or tell about now?

(Go to 2B)

2B. Where do you show or tell your feelings now, that is, in what kinds of situations or places?

(Go to 2C)

2C. Would you tell me about one time or place that you showed your feelings?

☐ YES (Record response):

☐ NO (Go to 3)

3. Are you telling or showing your feelings fewer times now than before "Heartsmart" began?

☐ YES (Go to 3A)

☐ NO (Go to 4)

3A. Tell me something about the feelings you don't show. What kinds of feelings don't you show now?

(Go to 3B)

3B. Where don't you show your feelings, that is, in what kinds of situations or places do you not show your feelings?

(Go to 3C)

3C. Can you tell me why?

Yes...

No (Go to 4.)

(Go to4)

4. Do you think the children in your class have changed since "Heartsmart" began?

☐ YES (Go to 4A)

☐ NO (Go to 5)

4A. Tell me how they've changed.

(Go to 4B)

4B. Do you like the way the class is now, or did you like it better before "Heartsmart" began?

☐ Now (Go to 4c)

☐ Before (Go to 4c)

4C. Would you like to give me an example to explain?

☐ YES (Record response):

☐ NO (Go to 5)

5. When you show your feelings now, does it usually help you?

☐ YES (Go to 5A)

☐ NO (Go to 5C)

5A. How does it help you?

(Go to 5B)

5B. Would you tell me about a time when showing your feelings has helped you?

☐ YES (Record response):

☐ NO

(Go to 6)

5C. Would you tell me how showing your feelings has not helped you?

(Go to 6)

6. Would you like to say anything else about "Heartsmart," or do you have any questions you would like to ask?

Record questions:

Record Ss' statements:

Terminate Interview

Code _____

WHAT WOULD YOU DO?

This is not a test. We would like to know what you would do in each of these situations. Think about the situation and then choose the answer that you think tells what you would do. Put a check (✓) next to your choice.

1. Everyone tells Martin how wonderful he was in the school play. He feels embarrassed by what they say. If you were Martin, what would you do?

   __ (a) Say you're embarrassed, but thank them for the compliments.
   __ (b) Try to change the subject.
   __ (c) Say, "I wasn't really so good."

2. Ellen visits her friend Jane, but Jane doesn't want to play. This hurts Ellen's feelings. If you were Ellen, what would you do?

   __ (a) Think that Jane is angry with you for something, and then walk away.
   __ (b) Tell her that your feelings are hurt, and then ask her to explain why she doesn't want to play.
   __ (c) Tell Jane you'll see her some other time, and walk away.

3. Dorothy and Bonnie are playing ball when Dorothy's little sister starts bothering them and getting in the way of their game. If you were Dorothy, what would you do?

   __ (a) Tell your parents that your little sister is being a pest and to make her go away.
   __ (b) Tell your little sister to go somewhere else to play.
   __ (c) Tell your little sister that you feel angry at her, and ask her to find something else to do.

4. Five boys and girls in your class start a secret club. You want to be in the club, but the other kids haven't asked you. What would you do?

   __ (a) Tell the kids that you feel left out, and that you would like to be in their club.
   __ (b) Think that the other kids don't like you and feel angry at them.
   __ (c) Tell your teacher that the other kids are starting a secret club and to make them let you join.

5. You feel very sad because your parakeet died. What would you do?

__ (a) Ask your parents to get a new parakeet.
__ (b) Think that it was only a bird and not very important.
__ (c) Be sad and even cry if you feel like it.

6. You want to watch your favorite show on TV but your older sister wants to watch another show. She pushes you away and puts her show on. What would you do?

__ (a) Get your mother or father to make your sister change the channel.
__ (b) Tell your sister you really want to see your show a lot and ask her to let you watch it.
__ (c) Push your sister back and switch on your show.

7. Your cousin won't let you play in his new treehouse. What would you do?

__ (a) Ask him why he won't let you play in the treehouse, and tell him how you feel about it.
__ (b) Go into the treehouse when he's not there.
__ (c) Ask his mother to let you play in the treehouse.

8. Donald gets mad when he sees his little brother's toys all over his half of the bedroom. If you were Donald, what would you do?

__ (a) Beat up your brother, and make him move his toys.
__ (b) Tell your brother you don't like the toys on your side and ask him to move them.
__ (c) Put your brother's toys, and some of yours, all on his side to teach him a lesson.

9. Last week Amy and Nora had a fight. Nora went home from Amy's crying, even though she thought she was right. Now Amy asks Nora to come over to play. If you were Nora, what would you do?

__ (a) Tell Amy how you felt about the fight, and why you felt that way.
__ (b) Say, "I'm sorry, but I can't play with you today."
__ (c) Go over to Amy's and pretend there was no fight.

10. It was Valentine's Day. Sarah sent Judy a Valentine but Judy didn't send one to Sarah. Sarah's feelings are hurt. If you were Sarah, what would you do?

__ (a) Ignore Judy for a while, even though you still want to be her friend.
__ (b) Ask Judy why she didn't send you a Valentine, and explain that your feelings were hurt.
__ (c) Think that Judy doesn't like you any more.

11. Takeo doesn't feel like going to Cub Scouts because he wants to be alone. His mother asked him why he isn't going. If you were Takeo, what would you do?

__ (a) Tell her you think you're getting sick and want to stay home.
__ (b) Tell her you feel like being alone today.
__ (c) Say that you've changed your mind and will go to Cub Scouts.

12. John and Tim are picking on Bob every day at school and teasing him a lot. If you were Bob, what would you do?

__ (a) Tell them that their teasing upsets you.
__ (b) Ignore them and walk away.
__ (c) Ask the teacher to talk to John and Tim.

13. Matthew is sick and his father is taking him to the doctor. Matthew is scared that he's going to have a shot. If you were Matthew, what would you do?

__ (a) Act brave and not let anyone know you're afraid.
__ (b) Tell your father you don't need a shot.
__ (c) Tell your father and the doctor that you're scared of having a shot.

14. At her birthday party Humiko doesn't like it because everyone is playing with her new toys and not paying attention to her. If you were Humiko, what would you do?

__ (a) Tell them you want them to play more with you.
__ (b) Start acting mean to the kids.
__ (c) Ask your mother to put the toys in another room.

15. Fred did very well when he was reading out loud in his group. Everyone enjoyed his reading and he felt glad. If you were Fred, what would you do?

__ (a) Feel glad inside, and keep your feelings to yourself.
__ (b) Tell them it's easy to read well.
__ (c) Let them know you feel glad.

16. All of Billy's friends were going to the movies on Saturday, but they didn't invite him to come along. Billy's feelings are hurt. If you were Billy, what would you do?

__ (a) Stay home and do something else, and try to forget about it.
__ (b) Tell them how you feel, and ask them if you can go, too.
__ (c) Show up at the movies at the same time they do.

17. Jane has been waiting her turn to get a drink of water and a boy in her class cuts in line in front of her. If you were Jane, what would you do?

__ (a) Push him out of the way.
__ (b) Tell him you don't like what he's doing, and ask him to wait his turn.
__ (c) Ignore him, because your turn will come pretty quickly anyway.

18. Richard, who is new in the school, doesn't have any friends. Everyone ignores him. If you were Richard, what would you do?

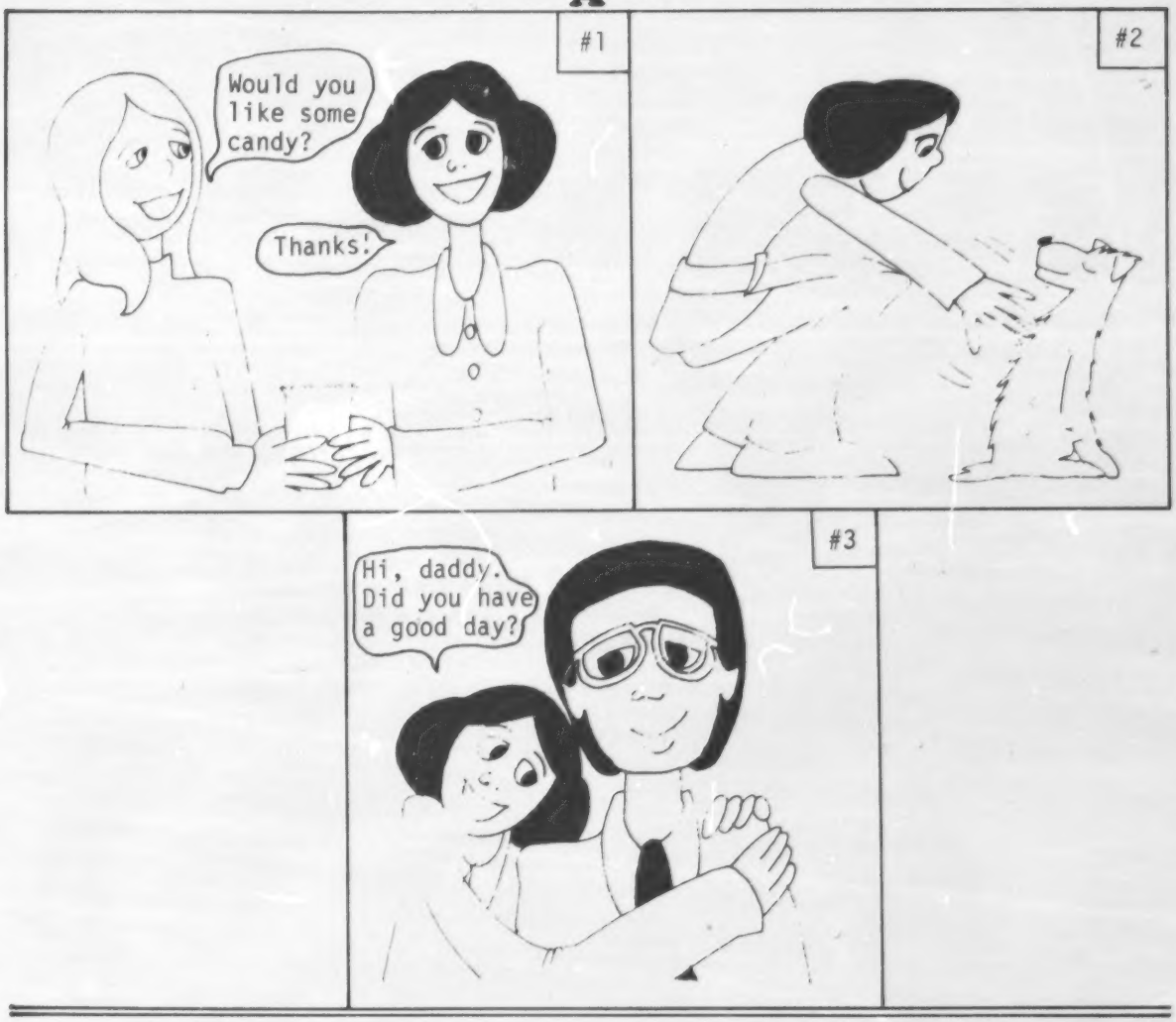
__ (a) Ask someone you like to play with you.
__ (b) Play by yourself.
__ (c) Try to take charge.

Code _____

WHAT'S HAPPENING?

This is not a test. There are eight (8) sets of cartoons. There are questions about each set of cartoons. Try to answer the questions as well as you can. Don't worry about spelling. You may write one word answers if you like. Turn the page only when you are told that you may do so.

A



1. What feeling did the girl show in the three pictures?

_____

2. Why did she do the things she did in the three pictures?

_____

B

#1
I'm going to the store. You look after your sister please.
OK Mom.
TONY
#2
Stay away from the door. Get back in the kitchen and eat your supper!
I want to wave goodbye.
TONY
#3
It's real dark. I hope mom gets back soon.
Mean mad monster!
#4
Let me in. Come on, open the door.
Who's there? Is...is that you mom?

1. In picture #2, Tony is showing a feeling. What feeling is he showing?

   _____

2. Tony's sister thinks he is angry. What should she do to find out if she is right? _____

3. Why do you think Tony is acting the way he is in picture #4?

   _____

4. How do you think Tony really feels about being in charge when his mother's not in the house?

   _____

   _____

C

GRANDMA VISITS THE BROWN FAMILY

#1
Come give me a big kiss, Joe.
#2
I baked a big chocolate cake for you.
HOW TO LOSE WEIGHT FAST
#3
You all look so well. Did you have a good vacation? You must tell me...
#4
Why did they act that way? I wonder.
BUS STOP

1. How to you think grandma feels about the Brown family in the first three pictures? _____

2. Tell <u>one</u> thing grandma did to show her feelings.

_____

3. a. Do you think that Joe wanted to kiss grandma?

CIRCLE ONE: YES NO I DON'T KNOW

b. Why or why not? _____

4. If grandma wants an answer to the question she's thinking in picture #4, what should she do?

_____

D

1. What happened to make the team take a vote?

_____

_____

2. What was Sally feeling when she said "Only one for me?"

_____

3. Draw a circle around the words Tim said that tell how he felt about being captain of the team.

E

#1
MIKE
I think I know why you didn't get an invitation to Joe's party and I did.
#2
Please tell me why.
#3
Because Joe likes me and doesn't like you. HA HA HA
#4
No one likes me.

1. a. Just from looking at the story pictures, is it possible to know if Ann is telling the truth?

   CIRCLE ONE: YES NO

   b. If you circled YES, explain how you could tell.

   _____

   _____

   c. If you circled NO, explain how you could find out the truth.

   _____

   _____

2. How can you tell how Mike feels in picture #4? Write as many answers as you know.

   _____

   _____

F

1. Why did Cindy act the way she did in the first three pictures?

_____

_____

2. Why do you think Cindy is acting the way she is in picture #4?

_____

_____

H

1. What was the boy feeling in the story?

_____

2. What happened to make the boy feel that way?

_____

3. Why did the boy act the way he did in picture #2?

_____

G

1. Write down all the ways you can see that Pat showed her feeling.